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Pursuant to Delegation 1-19, dated 07/07/2005

EARNED VALUE MANAGEMENT (EVM) PROCEDURES

1. PURPOSE

EPA's EVM Procedures illustrate the Agency methods for collecting and reporting performance on major IT investments (See Section 9, Definitions for a description of major IT investment). The EVM Procedures explain how EPA Program Offices are to receive, organize, analyze, and report cost, schedule, and performance of their major IT investments. Additional Agency policies, procedures, methodologies, training, and project management best practices are used in conjunction with these Procedures for the effective planning and management of investments.

Earned value is required for those parts of a major investment in the development phase. Earned value is applied to both Government full time equivalent (FTE) and contractor efforts. If the investment is operational (steady state), the operational analysis system as described in Phase IV of The Capital Programming Guide is required. EPA also has developed specific procedures contained in the Operational Analysis Guide, November 2007. If this is a mixed life-cycle investment with both operational and development/modernization/enhancement (DME) system improvement aspects, EVM must be used to provide a complete understanding of the status of the lifecycle of the project. (See Section 6.1.1 for a more specific definition of DME that requires EVM to be integrated.)

2. SCOPE AND APPLICABILITY

EPA major IT investments in the Preliminary Design phase (synonymous with OMB's "Planning" phase) must have an established baseline with the appropriate Work Breakdown Structure (WBS) and use EVM when prototyping and testing to select the alternative. EPA major IT investments with any resources allocated to the Development phase (synonymous with OMB's "Acquisition" phase) are required to report EVM.

3. AUDIENCE

This document is intended to assist PMs and/or Subject Matter Experts (SME) in completing the EVM Data Submission Template for each of their major IT investments. The National Capital Planning and Investment Control (CPIC) Team will analyze and format the data submissions from the Program Offices into an Agency-wide report summary for presentation and briefing to the EPA Information Investment Subcommittee (IIS), Chief Information Officer (CIO), senior management, and to OMB.

4. BACKGROUND

Earned Value (EV) is the value of completed work in terms of the budget assigned to the work. Earned Value Management (EVM) provides a standard means of objectively measuring work accomplished based on the budgeted value of that work. EVM is a project management technique that integrates a project scope of work with cost, schedule, and technical performance measures. It is used to monitor and control project resources and compile results into one set of metrics so that effective comparisons can be made. EVM helps evaluate and control project risk by measuring project performance and progress. It allows contractors conducting development work to provide project management for U.S. Environmental Protection Agency (EPA) information technology (IT) investments under an accepted industry standard and according to EPA guidelines.

Mandated by the Clinger-Cohen Act of 1996 and the Office of Management and Budget (OMB) June 2005 Circular A-11, projects (investments) must institute performance measures and management processes that monitor and compare actual performance to planned results. Agencies must use a performance-based acquisition management system, based on the American National Standards Institute/Electronic Industries Association (ANSI/EIA) Standard 748, to obtain timely information regarding the progress of investments. A detailed list of EVM legislation, policies, and standards can be found in Section 5, Authority.

On August 4, 2005, OMB issued Memorandum 05-23 to enforce the improvement of agencies' IT investment planning and execution. The memorandum required the full implementation of Earned Value Management Systems (EVMS) for IT investments to include:

1. Comprehensive agency policies;

2. EVMS requirements incorporated into contracts or agency in-house investments charters;

3. Compliance reviews of agency and contractor EVM Systems;

4. Periodic system surveillance reviews to ensure the EVMS continues to meet the guidelines in ANSI/EIA Standard 748; and

5. Integrated Baseline Reviews (IBRs) to finalize the cost, schedule, and performance goals.

In 2007, OMB provided a checklist of the major program elements that EPA must have in place for an EVM program. To comply with OMB's directives, EPA has established a high-level governance mechanism through its IT Policy Framework and EVM Procedures, requiring quarterly reporting, scoring, analysis, and corrective action be performed as necessary. In October 2004, EPA instituted the use of Microsoft Project for management of the Agency's investments and customized a Microsoft Excel spreadsheet, explained later in this document, designed for Program Managers to capture and report an investment's cost on a quarterly basis. As of March 2005, a Class Deviation was made to EPA Acquisition Regulation (EPAAR) 1552.211-79, which finalized, approved, and incorporated EPA's (i.e., the Office of Environmental Information's (OEI)) EVM Procedures outlined in this document into the contract clause. This update of the Procedures also adds some additional program changes to meet the 2007 EVM program requirements.

These Procedures establish the practices that Project Managers (PMs) should use to comply with and implement earned value requirements. These Procedures are superseded by any appropriate Federal Acquisition Regulation (FAR) or OMB requirements.

5. AUTHORITY

5.1 Legislation

Relevant Legislation:

- Government Performance and Results Act of 1993 – Mandates the use of performance metrics.
- Federal Acquisition Streamlining Act of 1994 – Requires agency heads to achieve, on average, 90 percent of the cost and schedule goals established for major and non-major acquisition programs of the agency without reducing the performance or capabilities of the items being acquired.
- Clinger-Cohen Act of 1996 – Requires establishment of the processes for executive agencies to analyze, track, and evaluate the risks and results of major investments in IT and requires reporting on the net program performance benefits achieved by agencies.

5.2 Policies

Relevant policy includes:

- OMB Circular A-11 (Part 7, Planning, Budgeting, Acquisition & Management of Capital Asset) – Outlines a systematic process for program management, which includes integration of program scope, schedule, and cost objectives; requires use of EV techniques for performance measurement during execution of the program; and specifically identifies ANSI/EIA Standard 748. http://www.whitehouse.gov/OMB/circulars/a11/03toc.html.
- OMB Memorandum M-04-24, "Expanded Electronic Government (E-Gov) President's Management Agenda (PMA) Scorecard Cost, Schedule and Performance Standards for Success" – Provides additional information on the President's Management Agenda (PMA) Expanded Electronic Government initiative and the standard for success concerning cost, schedule, and performance goals. http://www.whitehouse.gov/OMB/memoranda/fy04/m04-24.html.
- OMB Memorandum M-05-23, "Improving Information Technology (IT) Project Planning and Execution" – Provides guidance to assist agencies in monitoring and improving project planning and execution and fully implementing EVMS for major IT investments. http://www.whitehouse.gov/omb/memoranda/fy2005/m05-23.pdf.
- EPAAR 1552.211-79 b (5) Compliance with EPA Policies for Information Resources Management – States that contractors must comply with EPA IT policies, and that contractors performing IRM activities on behalf of the Agency shall conform to EPA's EVMS requirements, shall be in compliance with the ANSI/EIA Standard 748-A, and shall conform to all EPA governing documents associated with EPA's IT infrastructure.
- Federal Acquisition Regulation – FAR EVMS requirements can be found in Parts 2.101, 7.105, 34, 34.2 and 52.234-2 through 4. http://acquisition.gov/far/loadmainre.html.

5.3 Standards

Relevant standards include:

- American National Standards Institute/Electronic Industries Association (ANSI/EIA) EVMS Standard 748-1998 – Industry process for use of EVMS including integration of program scope, schedule, and cost objectives; establishment of a baseline plan for accomplishment of program objectives; and use of EV techniques for performance measurement during the execution of a program.
  http://www.ndia.org/Content/ContentGroups/Divisions1/Procurement/PDFs10/NDIA_PMSC_EVMS_IntentGuide_Jan2005.pdf

6. PROCEDURES

6.1 Organization, Planning, Scheduling, and Budgeting

This section describes the processes used to implement EVM. Several key terms that are used throughout this section can be found in Table 6-1.

6.1.1 Program Planning/Establishing a Performance Measurement Baseline

OMB, the FAR, and EPA procedures require that all major IT investments undergoing DME use an established EVMS. EVM implementation shall occur at the point where sufficient investment definition (e.g., establishment of the Performance Measurement Baseline (PMB)) is achieved and the DME cost is equal to 5% or more of the total annual (fiscal year) budget. This includes steady state investments that have a DME portion that equals or exceeds 5% of the total annual (fiscal year) budget.

The elements of an EVMS include those that ensure that earned value is implemented consistent with the ANSI/EIA Standard 748 elements, including:

- Work Breakdown Structures (WBS) - A task-oriented detailed breakdown, which defines the work packages and tasks at a level above that defined in the schedules.
- Organizational Breakdown Structures (OBS) - A functionally-oriented division of the organization established to perform the work.
- Responsibility Assignment Matrix (RAM) - Correlates the work required by a WBS element to the functional organization responsible for accomplishing the assigned tasks.
- Performance Measurement Baseline (PMB) - A time-phased budget plan against which project performance is measured.

Effective management requires the integration of the schedule and cost elements of the program. Schedules that result from this integration show the planned time required to accomplish the technical scope of the contract. The planned time is constrained by the available resources necessary to execute the work including scope, dependencies upon other work packages, and factors which may arise later. The schedule will be adjusted by leveling the resources to conform to the available budget, resource constraints and capacity of the work site among other factors.

The schedule should cover all specified work and incorporate milestones that are meaningful in terms of the technical requirements of the contract. The schedule must also be derived from the plan and contain forecasts of expected future progress. Such schedules should identify key milestones and activities and incorporate the effects of resources constraints and interrelationships between work packages which will permit the program or project to identify the critical path(s).

If appropriate, the schedule may contain a master schedule and related subordinate schedules that provide a logical sequence from the detail to the summary level related to and constrained by external milestones assigned by appropriate authority. Intermediate schedules may be established if needed to provide a logical sequence from the detail level schedules to the master program schedule. The schedule must also provide for the identification of interdependencies between organizations and WBS elements at the level appropriate for efficient program management. An effective scheduling system will depict the plan to accomplish the technical scope and the actual technical progress.

The schedule provides information on progress against the plan, along with estimates of the time required to complete the remaining technical scope. The schedule baseline, progress, and estimated time to complete, should be integrated with the financial view (budgets, EV, and estimated cost to complete) of the technical scope. Scheduling should interface with other elements of the EVMS to the extent necessary for measurement and evaluation of project status. The schedule system should provide current status and forecasts of completion dates for all authorized work. The summary and detailed schedules should enable a comparison of planned and actual status of project accomplishment based on milestones or other indicators used for control purposes. The ability to obtain financial data coincident with the schedule data from a specific period directly affects the currency of the information and the quality and timeliness of analysis and assessments. When the financial data excessively lags schedule information, accurate performance measurement information will not be available quickly enough to take effective action to mitigate variances. When this situation is present, managers should implement a process to estimate actual costs as a means to increase the currency of the performance information.

The assignment of budgets to scheduled segments of work produces the Performance Measurement Baseline, against which actual performance can be compared. The establishment, maintenance, and use of the PMB are indispensable to effective performance measurement. The PMB should be in place as early as possible in a project or program and should be planned to project completion. In complex programs and projects, the PMB will consist of work packages containing resources, planning packages containing budget and some summary level planning packages that also contain budget. Planning packages should be an item of continuing management interest. When the greater part of the budget is in planning packages or summary level planning packages because the project completion is so far in the future, the maturity of the PMB is questionable. Projects that have a long lifecycle must be broken down into useful segments for which individual PMBs can be established and controlled. Projects become more likely to be executed within cost and schedule when they are divided into the executable segments.

The PMB can only contain budget that is identified to a work package, planning package, or undistributed budget. Work packages and planning packages only contain work that directly affects the product or outcome. Work packages and planning packages cannot contain budget or resources that are not required to execute a specific WBS element. Project costs not included in the total cost that are not associated with specific work accomplishment, such as profit, fee, payment-in-lieu of taxes, management reserve, contingency and other similar items, do not belong in the PMB. The PMB must be valid for the progress and performance measures to be valid. Management reserve and contingency cannot be in the PMB because there is no defined work associated with them. When a work package or planning package requires additional resources, the additional budget may be assigned from management reserve or contingency. In that event, that assigned portion of the budget would no longer be management reserve or contingency.

6.1.2 Integrated Baseline Reviews

Program Managers and their technical staffs shall evaluate contract performance risks inherent in the contractor's planning baseline. This evaluation shall be initiated within 6 months after contract award, an Inter Agency Agreement is reached, or when a major modification occurs, for all actions requiring EVMS. The Integrated Baseline Reviews must occur before DME starts and before any re-baseline request is sent to OMB. Program Managers shall use the IBRs throughout the program when EVMS is required.

The contractor and the government shall ensure that this review has a business focus and includes important technical considerations. The process is usually composed of four steps:

(1) The Program Manager's understanding of the risks;
(2) Preparation for an IBR;
(3) Execution of the IBR; and
(4) The management process (the source of on-going mutual understanding).

The key step in the process is execution of the IBR. The IBR establishes a mutual understanding between contractors and government of the project PMB. This understanding provides for an agreement on a plan of action to evaluate the risks inherent in the baseline during project execution. Completion of the review should result in the assessment of risk within the project baseline and the degree to which the following have been established:

(1) Technical scope of work is fully included and is consistent with authorizing documents;
(2) Key project schedule milestones are identified and supporting schedules reflect a logical flow to accomplish the work;
(3) Resources (budgets, facilities, personnel, skills, etc.) are available and are adequate for the assigned tasks;
(4) Tasks are planned and can be measured objectively relative to the technical progress;
(5) Rationales underlying the program are reasonable; and
(6) Management processes support successful execution of the project.

Notification that the IBR has been conducted must be sent to the National CPIC Program following the review.

For additional information, refer to the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics website which, in cooperation with industry, has an IBR handbook located at: http://www.acq.osd.mil/pm/currentpolicy/IBR_Guide_April_2003.doc.

IBRs are conducted by the project team for the investment. Project team staff may be supplemented with other individuals who provide an expert evaluation of areas where a PM or SIO believe an outside evaluation is warranted (e.g., areas with significant uncertainty or complex technical issues). Any qualified person who did not prepare the baseline can join the project team during the IBR process. The Senior Information Official (SIO) determines who is qualified. If there are Federal-only sections of the baseline, then staff other than who prepared the Federal portion of the baseline must review it.

The selection and rationale for who is involved in the IBR should be documented as part of the IBR preparation phase.

If a contractor prepares a baseline for its portion of the project, then an example methodology for conducting an IBR would be to have the Integrated Project Team (IPT) serve as the reviewing group for the IBR (with the contractor present to provide explanation and rationale for why the baseline was prepared as it was). If necessary, the IPT could be supplemented by Federal or contractor members who were present because of their expertise or because of a particular issue with the baseline that requires additional review. For a Federally-prepared baseline (e.g., that reflects the Federal portion of an investment), the IPT can conduct the IBR as long as the IPT has members who were not responsible for preparing the baseline.

The SIO is responsible for: 1) ensuring the PM and project team plan an IBR in accordance with the DoD guidance and the EPA procedures, and approve the overall methodology that will be used for the IBR process; 2) ensuring the PM and project team execute the IBR and report any major findings to the SIO with a mitigation strategy; and 3) approving the results of the IBR with any mitigation actions and ensure the subsequent baseline is adjusted according to the IBR findings.

6.2 Monitoring, Analysis, and Reporting

6.2.1 EVM Data Collection Requirement

The FAR, EPAAR, and OMB Circular A-11 require contractors to provide PMs with their monthly EVM data documenting the cost, schedule, and performance of the investments. It is the responsibility of the PMs to review the reports provided on a monthly basis and make adjustments to the investment's cost and schedule accordingly. The PMs shall also provide their management with the results of their monthly review.

All investments reporting EVM should have a formally approved WBS, OBS, and PMB against which work can be planned, tracked, and reported. These three elements, among others, are critical elements of the ANSI/EIA Standard 748 for EVMS. The complete requirements of ANSI/EIA Standard 748 are included as Appendix B, ANSI/EIA 748 – Summarized (32) Guidelines, of these Procedures.

The investment team must ensure that all direct costs of work (contractor and Federal employees) are allocated to the investment. PMs should plan to use EPA's payroll system as the basis for these direct cost charges.

Period of Assessment

EPA has both monthly and quarterly EVM assessment and review processes. The EPA EVM data submission process for the IIS and OMB is done quarterly. It is expected that PMs collect and analyze EVM data on a monthly basis and share the information with their management to act on any issues that require corrective action. The quarterly review is designed to assess the performance of an investment through the end of the previous quarter, reporting cumulative data and data for each month of the quarter. For example, if the review is being conducted in the second quarter of a fiscal year, the performance data that Program Offices provide for the investment must reflect performance through the end of the first quarter. This allows Program Offices to collect and report on a period of performance that has been completed as opposed to a period that is still in progress.

Submitting the EVM Data Submission Template

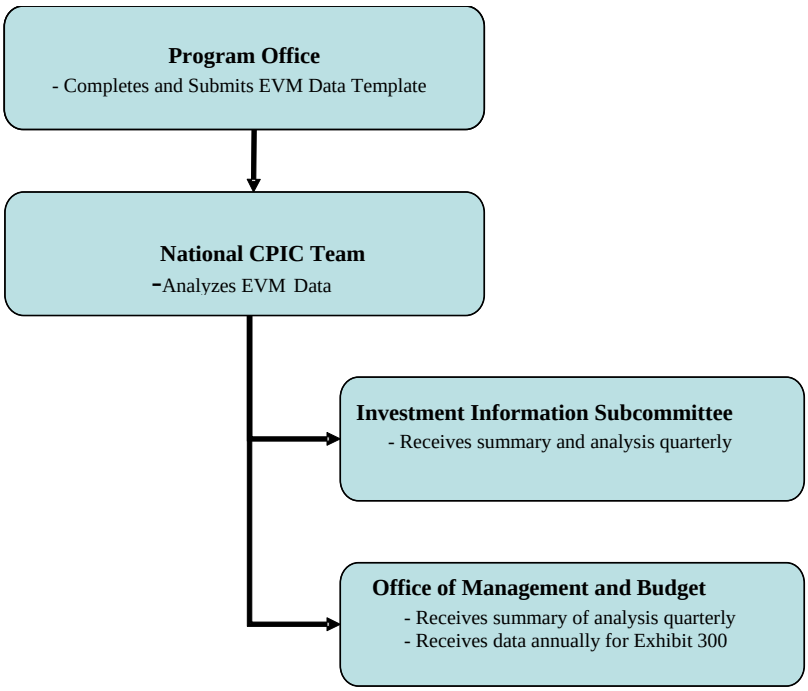
PMs are required to submit EVM data to the National CPIC Program using the standard EVM template (see Section 6.4, Templates and Tools). Using the template is mandatory unless an alternative reporting format is approved by the National CPIC Program and ensures that EVM calculations are accurate and complete. All templates shall be submitted via e-mail by the SIO or by the Information Management Officer (IMO) with copy to the SIO to the National CPIC Program for review and analysis, prior to submission to the IIS, on a quarterly basis to equip them in proactively monitoring investment and portfolio performance.

The EVM analyst will review the submissions and coordinate requests for additional information and/or clarification required before presentation to the IIS.

6.2.2 Reporting and Analysis of EVM Data

The quarterly EVM data submission process is initiated through an official data call notification to the appropriate IMO and IT PMs from the EVM Analyst. The data call will contain specific guidance and requirements for the data submission. These documents will be used by the Program Offices when submitting quarterly EVM data for their major investments. EVM data not submitted using the official Agency template or a format approved by the National CPIC Team will be returned for proper submission in accordance with Agency guidelines.

Figure 6-1: EVM Data Submission / Reporting Process



Quarterly EVM data shall be submitted by the appropriate SIO or IMO (with copy to the SIO) to the National CPIC Program Lead and EVM Analyst. The EVM data will be analyzed and presented to the IIS and OMB quarterly. The presentation will include a portfolio analysis of each investment's data based on the quarterly and cumulative breakdown of the data and a quarterly trend analysis. The detailed quarterly data along with the project's cumulative analysis provide the Agency's IT decision makers with a more holistic picture of each investment's status, reveal spikes in the data, and identify early warnings of possible issues. For those investments outside of the + or -10% or more cost or schedule variance, the Program Office must develop a Corrective Action Plan that is reviewed and approved by the IIS.

Analyzing the EVM Data Submission Template

After the SIO or IMO (with copy to the SIO) submits the EVM data templates, it is the responsibility of the National CPIC Program to perform an analysis on each investment by reviewing the templates. This analysis will identify any performance issues that may exist, and provide a preliminary assessment for the investment and the agency portfolio. To obtain the best analysis of the investment's use of earned value, the investment's Total Planned Cost (Budget at Completion (BAC)), Budgeted Cost of Work Scheduled (BCWS/PV), Budgeted Cost of Work Performed (BCWP/EV), Actual Cost of Work Performed (ACWP/AC), and Actual Percent Complete are required.

Various calculations are performed on these values to provide the investment's Cost/Schedule Variance (CV/SV), Cost/Schedule Performance Index (CPI/SPI), Estimate to Complete (ETC), Performance Factors (PF), Estimate at Completion (EAC), and Variance at Completion (VAC).

Table 6-1 defines the calculations that the National CPIC Program uses to analyze the data provided.

Table 6-1: Key Terms and EVM Definitions and Calculation

Terms	EVM Definition and Calculations	In Other Words
Actual Cost of Work Performed (ACWP)	Equals the cumulative to date actual dollars	The cost actually incurred in accomplishing the work performed.
Budgeted Cost of Work Performed (BCWP)	Equals the cumulative to date earned value	The sum of the budgets for completed work and completed portions of open work.
Budgeted Cost of Work Scheduled (BCWS)	Equals the cumulative to date planned dollars	The sum of the budgets for all planned work scheduled to be accomplished within a given time period.
Budget at Completion (BAC)	Equals the total budget for the project	The sum of all budgets allocated to the project.
Percent (%) Complete	Equals cumulative percent complete for all milestones. Try to use objective criteria for determining percent complete to extent possible (e.g., percentage of deliverables completed vs. total number of deliverables scheduled for FY; percentage of total defects planned to be fixed vs. the total number of defects; percentage of total milestones completed vs. the total number of milestones scheduled).	No further explanation needed.
Cost Variance (CV)	CV = (BCWP-ACWP)	The difference between the earned value less the actual costs
Cost Variance (CV) %	CV % = (CV/BCWP) x 100%	The difference between the earned value less the actual costs shown as a percentage
Cost Performance Index (CPI)	CPI = (BCWP/ACWP)	Represents the relationship between the actual costs and the work performed.
Schedule Variance (SV)	SV = (BCWP-BCWS)	The difference between the earned value less the planned value.
Schedule Variance (SV) %	CV % = (SV/BCWS) x 100%	The difference between the earned value less the planned value shown as a percentage
Schedule Performance Index (SPI)	SPI = (BCWP/BCWS)	Represents the relationship between the planned schedule and the work performed.
Estimated to Complete (ETC)	ETC= BAC-BCWP	Represents the value of the work required to complete the investment

Terms	EVM Definition and Calculations	In Other Words
Estimate at Completion (EAC)	EAC=ETC+ACWP	Represents the projected final costs of the work when completed.
Variance at Completion (VAC)	VAC=BAC-EAC	Difference between the baseline (BAC) and estimate at completion.
Performance Factor (PF) 1	PF1= ACWP/BCWP or 1/CPI	No further explanation needed.
Performance Factor (PF) 2	PF2= 1/(CPI*SPI)	No further explanation needed.
IEAC1	ACWPc + (PF1 * ETC)	No further explanation needed.
IEAC2	ACWPc + (PF2 * ETC)	No further explanation needed.
VAC - IEAC 1	BAC- IEAC1	No further explanation needed.
VAC - IEAC 2	BAC- IEAC2	No further explanation needed.
VAC % - IEAC 1	VAC - IEAC 1/BAC	No further explanation needed.
VAC % - IEAC 2	VAC - IEAC 2/BAC	No further explanation needed.

EPA e-Government Scorecard

The investment data that are assessed during the quarterly EVM data submission process is also used as input to the Agency scores on the EPA e-Government Scorecard. Although the EVM data submission process is focused on the performance of IT investments, the e-Government Scorecard assesses the performance of the Agency's IT portfolio. Therefore, the performance is reported to OMB via the scorecard each quarter. The EPA uses the OMB Quarterly EVM Reporting template to forward the Agency's IT investments EVM data to OMB. See Appendix A for the OMB Quarterly EVM Reporting Template.

OEI Evaluation Process

In order to evaluate the performance of investments, the National CPIC Program will analyze how each IT investment performed with respect to the following two areas:

(1) Cost Variance (CV)

(2) Schedule Variance (SV)

The evaluation process determines whether investments are performing within + or -10% of the cost and schedule baseline goals as defined in their business cases, meeting at least 90% of their performance goals.

6.2.3 Integration with Portfolio Management

In accordance with OMB Memorandum M-05-23, and the OMB EVM Checklist, EPA uses EVMS data and analysis to make management and IT portfolio management decisions. Quarterly reviews with senior management identify trends in performance of individual projects and the portfolio as a whole. Close coordination with enterprise architecture activities ensure the investments align with Agency objectives.

6.2.4 Data Management and Control

All data generated during the EVM process are submitted to OEI and are maintained in a central data archive. Original monthly data to reflect EVM results are required by this Procedure to be maintained by the investment teams and must be made available to the National CPIC Program when requested.

6.3 Baseline Change Control Process

EPA has established a baseline change control process that ensures efficient identification and evaluation of changes and tailored management review of proposed changes (up to and including OMB) depending on the size and impact of the changes. EPA divides changes into re-planning and re-baselining changes.

Re-Planning Changes

Internal re-planning activities are not considered re-baselining changes and are approved at EPA. The SIO can approve re-planning changes no more than once a year. The following process defines steps and thresholds that determine how a change is evaluated and approval decisions are escalated. The thresholds in Table 6-2 are based on changes to lifecycle cost or length of the DME portion of an investments schedule, and define approval levels and change thresholds for baseline change control process.

Table 6-2: Baseline Change Control Approval Level and Thresholds

Approval Authority	Lifecycle Cost Threshold	DME Schedule Threshold
Senior Information Officer (Re-Planning)	<4% change in lifecycle cost	<7% change in DME schedule duration
Information Investment Subcommittee (Re-Planning)	4% - <5% change in lifecycle cost	7% - <10% change in DME schedule duration
Office of Management and Budget (Re-Baselining)	>5% change in lifecycle cost	10% change in DME schedule duration

In addition to the thresholds, other changes may trigger a re-baseline request to OMB such as a major change. “Major” is defined as a change in technical approach, scope, or significant milestones of an investment. Determination of whether or not changes are major is left to judgment of the SIO. If the SIO believes a major change has occurred, the PM must immediately notify the National CPIC Program. The National CPIC Program will add the request to the IIS meeting agenda to review and approve the change. The IIS makes the recommendation that OMB approval is required.

Percent changes in lifecycle costs are the percent changes in the sum of planning, DME, and operations and maintenance (O&M) costs. The percent changes in DME schedule threshold are determined differently than lifecycle costs. For each DME duration (the time from the start of DME through its defined completion), a percent of change in the total weeks or months is used as the re-planning or re-baselining threshold. For projects in constant DME, PMs must identify discrete DME phases (based on major deliverables) as the basis for calculating the schedule threshold. In all cases, an SIO may evaluate whether the reason for a re-baseline change was a Congressional action--a continuing resolution or change in legislation--and factor these elements into their determination of what category a change meets.

Re-Baselining Changes

A re-baseline change is a formal request to OMB to change an approved (Performance Measurement) baseline. All re-baseline change requests are reviewed and approved by the SIO and the IIS before being submitted to OMB. Considerable effort should be made during the planning phase of the investment to account for all areas of the System Life Cycle (SLC) of the investment in order to avoid the need for continuous re-baselining.

For situations when EPA requests a re-baseline on-going communications between the National CPIC Program, Program Office, and OMB should be in progress. After receiving approval from their SIO the PM should provide the following information to the National CPIC Program:

- Precise justification
- Revised milestones with new cost and schedule goals
- A revised Summary of Spending table of the proposed schedule

This documentation is submitted to the National CPIC Program for inclusion into IIS meeting agenda to obtain concurrence and recommend the request to the CIO. Final re-baseline approval must be obtained from OMB before changes are implemented in the project. The PM must monitor and report on currently approved milestones until official approval is received from OMB.

Once a new baseline is approved, an appropriate adjustment to the EVM data will be made. This generally involves re-setting the Budgeted Cost for Work Scheduled (BCWS) of the investment to better reflect the future activities. To re-set EVM metrics, the following are recommended:

- To close the work package and control accounts with variances
- To eliminate the schedule variance only, set the cumulative BCWS equal to cumulative Budgeted Cost for Work Performed (BCWP)
- To eliminate both schedule and cost variances, set the cumulative BCWS and BCWP equal to Actual Cost for Work Performed (ACWP)

6.3.1 Developing a Corrective Action Plan

Developing a Corrective Action Plan is the responsibility of the Program Office. For major investments that have a cost or schedule variance of + or -10% or more, Program Offices are required to develop a Corrective Action Plan. It is at the discretion of the IIS and CIO as to whether or not Program Offices/PMs will need to draft a Corrective Action Plan for those investments within a variance of + or -10%. If the variance is a result of contractor performance, the PM may obtain input from the contractor for the Corrective Action Plan.

Corrective Action Plans are documents that allow Program Offices to define the strategy that will be employed to improve the performance of their investment(s). The Corrective Action Plan requires Program Offices to provide a brief description of the strategies they will implement in order to correct existing problems; the specific, actionable tasks associated with each strategy; points of contact for each task; and start and end dates for executing each task. PMs may be required to provide the status of any Corrective Action Plans in future Quarterly Reviews. Corrective Action Plans are submitted in response to the quarterly EVM data call and a sample template may be found at: http://intranet.epa.gov/cpic/evm/out-variance-corractionplan.doc

Evaluating Corrective Action Plans

The National CPIC Program will be responsible for evaluating the effectiveness of all Corrective Action Plans that are developed by the Program Offices. If the National CPIC Program does not agree with the documented corrective strategy, a meeting may be required with the responsible Program Office in order to obtain a better understanding of the challenges facing the investment. Subsequently, the National CPIC Program may make recommendations for improving the Corrective Action Plan as well as the performance of the investment. In addition, Corrective Action Plans will be provided to the IIS for review and determination if appropriate actions are being taken.

6.3.2 Compliance Reviews

Per OMB Memorandum M-05-23, full implementation of an EVMS for IT investments includes compliance reviews of agency and contractor EVM systems. The EPA must determine that the contractors comply with the FAR clauses requiring EVMS in compliance with the ANSI/EIA Standard 748. In order to streamline the compliance review process EPA requires a letter from each contractor certifying that the

FAR clauses related to EVM are being implemented. These activities include following the ANSI/EIA Standard 748 elements and establishing a timeline for receiving ANSI/EIA Standard 748 certification. A sample template of the contractor EVM compliance certification letter is provided in Appendix E. Office of Acquisition Management (OAM) coordinated the collection of the initial contractor certification letters. For any new investments, the letter must be received at the same time the first quarterly EVM report is submitted.

At a later date, the EPA EVM Procedures will be updated to address the compliance review process, including at a minimum:

- Schedule and criteria for conducting compliance reviews and certification
- Required documentation
- Activities to be performed
- Participants – with specifics regarding roles and responsibilities
- Process for corrective actions (including impacts to the acquisition process)
- Reporting of findings
- Criteria for success

6.3.3 Exemptions and Waivers

If the EPA investment supports a shared service and the shared service provider's contract does not require compliance with ANSI/EIA Standard 748, the PM may follow the exemption process. The PM may ask the SIO to send a memorandum to the National CPIC Program invoking the compliance review exemption. The memorandum must contain the names of the EPA investment, shared service provider and contractor and should be submitted at the same time as the first quarterly EVM report.

A wavier to the ANSI/EIA Standard 748 compliance can be requested by small businesses as long as they can demonstrate that compensating controls are currently in place. This waiver request, in the form of a memorandum to the IIS from the SIO, must justify the waiver request and describe the compensating controls. The memorandum should be sent to the National CPIC Program for inclusion on the IIS quarterly meeting agenda.

6.3.4 Surveillance Reviews

As stated in the National Defense Industrial Association (NDIA) Program Management Systems Committee (PMSC) Surveillance Guide (an OMB-recommended document), Surveillance is the process of reviewing the health of the EVMS process applied to one or more programs. The purpose of surveillance is to focus on using EVMS effectively to manage cost, schedule, and technical performance. OEI, in conjunction with OAM plans to execute an effective surveillance process to ensure that the key elements are maintained over time and on subsequent applications.

The goal of EVMS surveillance is twofold. First, it ensures that the contractor processes and procedures are being followed appropriately. Second, it confirms that those processes and procedures satisfy the guidelines in the ANSI/EIA Standard 748. An overview of the surveillance process includes:

- Organization
- Planning

- Execution
- Results
- Management control and corrective action

Per OMB Memorandum M-05-23, agencies are required to periodically review the agency or contractor to ensure they continue to meet ANSI/EIA Standard 748. As for the compliance process, the surveillance review shall include, at a minimum:

- Schedule and criteria for conducting surveillance reviews
- Required documentation
- Activities to be performed
- Participants – with specifics regarding roles and responsibilities
- Impacts to acquisition process (i.e., contracts considerations)
- Reporting of findings
- Criteria for success

6.4 Templates and Tools

The National CPIC Program uses templates and tools to assist in the reporting and management of EVMS data. EPA established a standard template for reporting EVM data for FY 2005 and beyond that will help ensure consistent data across investments for use in management analysis. The templates are located at http://intranet.epa.gov/cpic/evm/index.htm.

Using the template is mandatory unless an alternate reporting format is approved by the National CPIC Program and ensures that EVM calculations are accurate and complete. It also allows data from multiple investments to be easily combined to generate the Agency's EVM portfolio package. In addition, the template reduces the burden on the PM, as key metrics are auto-calculated for investments based on basic EVM data inputs. This allows the PMs to focus less on data entry and manipulation, and more on understanding the overall performance and direction of the investment. It also allows the PM to develop strategies to resolve any cost, schedule, or performance variances.

Developing the EVM Quarterly Review Portfolio Report

Once all the investments have been analyzed and a preliminary score has been assessed, the National CPIC Team is responsible for creating the EVM Quarterly Review Portfolio Summary Report. This report will document the findings of the National CPIC Program's analysis on all the major IT investments within EPA. This summary report, along with the individual Performance Reports for the investments, is provided quarterly to the IIS and the CIO.

Additionally, the National CPIC Program also creates charts to graphically depict the variances for each investment. This allows for quick recognition of problem investments and trends and enables management to focus its resources on those investments or issues that require the most attention.

6.5 Integration of EVMS with Acquisition Processes

Current language in EPAAR 1552.211-79, Compliance with EPA Policies for Information Resources Management, states that contractors must comply with EPA IT policies. The FAR and the EPAAR 1552.211-79 b (5) require "Contractors performing IRM activities on behalf of the Agency shall conform to

EPA's Earned Value Management Systems requirements, shall be in compliance with the ANSI/EIA Standard 748-A, and shall conform to all EPA governing documents associated with EPA's IT infrastructure."

7. RELATED DOCUMENTS

- Government Performance and Results Act of 1993 – Mandates the use of performance metrics.
- Federal Acquisition Streamlining Act of 1994 – Requires agency heads to achieve, on average, 90 percent of the cost and schedule goals established for major and non-major acquisition programs of the agency without reducing the performance or capabilities of the items being acquired.
- Clinger-Cohen Act of 1996 – Requires establishment of the processes for executive agencies to analyze, track, and evaluate the risks and results of major investments in IT and requires reporting on the net program performance benefits achieved by agencies.
- OMB Circular A-11 (Part 7, Planning, Budgeting, Acquisition & Management of Capital Asset) – Outlines a systematic process for program management, which includes integration of program scope, schedule, and cost objectives; requires use of EV techniques for performance measurement during execution of the program; and specifically identifies ANSI/EIA Standard 748. http://www.whitehouse.gov/OMB/circulars/a11/03toc.html.
- OMB Memorandum M-04-24, "Expanded Electronic Government (E-Gov) President's Management Agenda (PMA) Scorecard Cost, Schedule and Performance Standards for Success" – Provides additional information on the President's Management Agenda (PMA) Expanded Electronic Government initiative and the standard for success concerning cost, schedule, and performance goals. http://www.whitehouse.gov/OMB/memoranda/fy04/m04-24.html.
- OMB Memorandum M-05-23, "Improving Information Technology (IT) Project Planning and Execution" – Provides guidance to assist agencies in monitoring and improving project planning and execution and fully implementing EVMS for major IT investments. http://www.whitehouse.gov/omb/memoranda/fy2005/m05-23.pdf.
- EPAAR 1552.211-79 b (5) Compliance with EPA Policies for Information Resources Management – States that contractors must comply with EPA IT policies, and that contractors performing IRM activities on behalf of the Agency shall conform to EPA's EVMS requirements, shall be in compliance with the ANSI/EIA Standard 748-A, and shall conform to all EPA governing documents associated with EPA's IT infrastructure.
- Federal Acquisition Regulation – FAR EVMS requirements can be found in Parts 2.101, 7.105, 34, 34.2 and 52.234-2 through 4. http://acquisition.gov/far/loadmainre.html.
- American National Standards Institute/Electronic Industries Association (ANSI/EIA) EVMS Standard 748-1998 – Industry process for use of EVMS including integration of program scope, schedule, and cost objectives; establishment of a baseline plan for accomplishment of program objectives; and use of EV techniques for performance measurement during the execution of a program.
  http://www.ndia.org/Content/ContentGroups/Divisions1/Procurement/PDFs10/NDIA_PMSC_EVMS_IntentGuide_Jan2005.pdf.

8. ROLES AND RESPONSIBILITIES

The following are the roles and responsibilities associated with EVM practices at EPA.

EPA Administrator: Approves continuation of IT investments that are outside of acceptable cost, schedule, and/or performance variance.

Assistant Administrators, Associate Administrators, Staff Office Directors, Regional Administrators, General Counsel, and Inspector General: Ensure, in their areas of responsibility, compliance with this Procedure.

Chief Information Officer (CIO): Works with the Quality and Information Council (QIC) to establish the criteria, threshold levels, and formats for EVM submission. On the advice of the QIC and QIC's IIS, the CIO reviews and selects the investments to be funded, recommends proposals to the Chief Financial Officer (CFO) for investment consideration during the Agency's budget formulation process, and oversees continued implementation of an accurate EVM system to monitor and evaluate the ongoing performance of IT investments. Additionally, the CIO, in consultation with the CFO, Senior Procurement Executive, and the QIC's IIS, reviews and monitors compliance with these Procedures. The CIO reviews the requests for waivers from these Procedures, and approves or disapproves such requests as appropriate.

Chief Financial Officer (CFO): Provides, in consultation with the CIO and other senior program officials, the appropriate review, selects investments to be funded, and monitors compliance with the EVM policy to ensure that the requirements of the OCFO Act of 1990, OMB Circular A-127, and other related statutory and regulatory authorities are met.

Quality and Information Council (QIC): Under the chairmanship of the CIO, addresses and resolves intra-Agency cross-media, cross-program, and interdisciplinary information technology/information management and related policy issues.

QIC's Information Investment Subcommittee (IIS): Advises and assists the QIC on all matters pertaining to information investment management. The IIS supports the QIC in making recommendations to the CIO on the appropriateness of information investments, and monitors the Agency's IT investments from inception to completion throughout the Select, Control, and Evaluate phases of the CPIC program.

Deputy Chief Information Officer for Technology (DCIOT): Establishes and publishes procedures, standards, and guidelines based on the Clinger-Cohen Act, and OMB and Agency CPIC requirements established herein. The DCIOT reviews requests for waivers from the CPIC procedures and standards, and approves or disapproves them as appropriate for fulfillment of the EPA CPIC policy and Agency mission. (For the waivers from these procedures, please refer to the CIO's Roles and Responsibilities in this section.)

Senior Procurement Executive (SPE): Ensures that acquisition strategy considerations for each project are appropriate, and investment proposals are consistent with the EPA acquisition policies and procedures.

Chief Architect (CA): Provides direction to the development and maintenance of the EPA's Enterprise Architecture, and ensures its coordination with the Federal Enterprise Architecture framework and EPA's information management collaborations with state, local, and tribal partners. Provides recommendations to the IIS/QTS on the selection of the technological enhancements to be developed in the Agency by ensuring that the proposed IT investments are compliant with the EPA's Enterprise Architecture.

Senior Information Officials (SIO): Coordinate the development of information resource investment proposals within their respective offices. They monitor the implementation of information resource investments to ensure that information technologies used and managed by their organization support the organization's business needs and mission and help to achieve EPA's strategic goals. Responsibilities include, but are not limited to determining who is qualified to conduct an IBR and approve an annual

request to re-baseline for a change in lifecycle cost under four percent or DME schedule change under seven percent.

Information Management Officers (IMO): Support the SIOs in development of the information resource investment proposals within their respective offices, and monitor the implementation of information resource investments.

Senior Resource Officials (SRO): Participate in the development of the information resource investment proposals within their respective offices, and monitor the implementation of information resource investments to ensure effective and appropriate resource management.

Senior Budget Officers (SBO): Support the IMOs, SIOs, and SROs in the process of development of the information resource investment proposals within their respective offices, and monitor the implementation of information resource investments. Ensure the alignment of resources between the Agency's authoritative budget source and the IT investments' business cases.

Project (Investment) Managers (PMs): Develop and maintain viable, appropriate, and achievable CPIC business cases that support EPA's goals for information management and enable the Agency's senior management to select, review, and evaluate IT investments. Additionally, provide day-to-day management of the investments, and ensure that the investments advance in an orderly fashion through the CPIC process. Must be qualified in accordance with Federal and Agency requirements for IT project management, and possess documented knowledge and skills as prescribed by the qualification guidance.

9. DEFINITIONS

Actual Cost of Work Performed (ACWP) – The costs actually incurred and recorded in accomplishing the work performed within a given time period.

Budget at Completion (BAC) – The sum of all budgets established for the contract.

Budgeted Cost of Work Scheduled (BCWS) – The sum of the budgets for all work packages, planning packages, etc., scheduled to be accomplished (including work in process), plus the amount of level of effort and apportioned effort scheduled to be accomplished within a given period.

Budgeted Cost of Work Performed (BCWP) – The sum of the budgets for completed work packages and completed portions of open work packages, plus the applicable portion of the budgets for level of effort and apportioned effort.

Capital Project (Investment) – The acquisition of a capital asset and the management of that asset through its life-cycle after the initial acquisition. Capital projects (investments) may consist of several useful segments.

Control Account (CA) – A management control point at which budgets (resource plans) and actual costs are accumulated and compared to EV for management control purposes. A control account is a natural management point for planning and control since it represents the work assigned to one responsible organizational element on one program WBS element.

Corrective Action Plan - Major investments with a variance outside of established thresholds for cost or schedule are required to develop Corrective Action Plans. Such plans provide strategies to correct deficiencies and to improve investment performance. The agency EVM Procedures outline the required components of Corrective Action Plans as well as who is responsible for the development and review of Corrective Action Plans.

Cost Performance Index (CPI) – Ratio of work accomplished versus work cost incurred for a specified time period. The CPI is an efficiency rating for work accomplished for resources expended.

Cost Variance (CV) – A metric for the cost performance on a contractor program. It is the algebraic difference between EV and actual cost (Cost Variance = Earned Value - Actual Cost). A positive value indicates a favorable position and a negative value indicates an unfavorable condition.

Development/Modernization/Enhancement (DME) – Development, modernization and enhancement costs associated with new investments or changes to existing systems.

Earned Value (EV) (or Budgeted Cost of Work Performed) - The value of completed work expressed in terms of the budget assigned to that work.

Earned Value Management (EVM) – A project (investment) management tool that effectively integrates the investment scope of work with schedule and cost elements for optimum investment planning and control. The qualities and operating characteristics of EVMS are described in American National Standards Institute (ANSI)/Electronic Industries Alliance (EIA) Standard –748–1998, Earned Value Management Systems, approved May 19, 1998. It was reaffirmed on August 28, 2002.

Earned Value Management System (EVMS) – An integrated management system which uses EV to measure progress objectively.

Estimate at Completion (EAC) – Actual direct costs, plus indirect costs allocable to the project, plus the estimate of costs (direct and indirect) for authorized work remaining.

Integrated Baseline Review (IBR) – A joint Government/Contractor assessment of the ability of the project's technical plan to achieve the objectives of the scope of work; adequacy of the time allocated for performing the defined tasks to successfully achieve the project schedule objectives; ability of the PM to successfully execute the project and attain cost objectives, recognizing the relationship between budget resources, funding, schedule, and scope of work; availability of personnel, facilities, and equipment when required, to perform the defined tasks needed to execute the program successfully; and the degree to which the management process provides effective and integrated technical/schedule/cost planning and baseline control. IBRs are intended to provide a mutual understanding of risks inherent in offerors'/contractors' performance plans and underlying management control systems and to formulate a plan to handle these risks.

Life-Cycle Costs – The overall estimated cost, both Government and contractor, for a particular program alternative over the time period corresponding to the life of the program, including direct and indirect initial costs plus any periodic or continuing costs of operation and maintenance.

Major IT Investment – EPA uses OMB's definition of a major investment, which is a system or project that meets the following criteria:

- Requires special management attention because of its importance to agency functions or mission goals.
- Costs more than $500,000 annually and is for financial management.
- Ties directly to the top two layers of the Federal Enterprise Architecture (FEA) (Services to Citizens and Mode of Delivery).
- Is an integral part of the Agency's Enterprise Architecture (EA) modernization blueprint.
- Has significant program or policy implications.
- Has high development, operating or maintenance costs.
- Is funded through other than direct appropriations.
- Defined as a major by EPA's capital planning and investment control process.

- Has high executive visibility.
- Meets EPA core CPIC criteria, standards, or requirements as a "major system" that aligns with the E-Gov strategy and E-Business solutions.

Additionally, the following must be identified as major IT investments:

- IT investments that are E-Gov in nature, Lines of Business (LoB) Oversight, or use E-Business technologies regardless of the costs.
- IT investments that have significant multiple-agency impact.
- IT investments that are mandated by legislation or executive order, or identified by the Administrator as mission critical.

All major IT investments must be reported on the bi-annual Exhibit 53 submission and must submit a "Capital Asset Plan and Business Case Summary," Exhibit 300.

Mixed Life-Cycle Investment – An investment that has both DME and steady state aspects. For example, a mixed lifecycle investment could include a prototype or module of a system that is operational, with the remainder of the system in DME stages; or, a service contract for steady state on the current system with a DME requirement for system upgrade or replacement.

Non-Major IT Investment – EPA uses OMB's definition of a non-major investment which is any initiative or investment not meeting the definition of major, but that is part of the agency's IT investments. All non-major investments (for EPA >=$250K annually) must be reported **individually on Exhibit 53.**

Operational (Steady State) – An asset or part of an asset that has been delivered and is performing the mission.

Organizational Breakdown Structures (OBS) – A functionally-oriented division of the contractor's and agency organization established to perform the work on a specific contract. The OBS indicates the organizational relationships and is used as the framework for assigning work responsibilities.

Performance Measurement Baseline (PMB) – The time-phased budget plan against which contract performance is measured. It is formed by the distributed budgets. It is equal to the total allocated budget less management reserve.

Performance-Based Acquisition Management – A documented, systematic process for program management, which includes integration of program scope, schedule and cost objectives, establishment of a baseline plan for accomplishment of program objectives, and use of EV techniques for performance measurement during execution of the program. EVMS is required for those parts of the investment where developmental effort is required. This includes prototypes and tests to select the most cost effective alternative during the Planning Phase; the work during the Acquisition Phase; and any developmental, modification, or upgrade work done during the Operational/Steady State Phase. EVMS is to be applied to both Government and contractor efforts. For operational/steady state systems, an operational analysis system as discussed in Phase IV of the Capital Programming Guide is required. A performance-based service contract/agreement with a defined Quality Assurance Plan should be the basis for monitoring contractor or in-house performance of this phase.

Planning – Preparing, developing, or acquiring the information you will use to design the investment; assess the benefits, risks, and risk-adjusted life-cycle costs of alternative solutions; and establish realistic cost, schedule, and performance goals, for the selected alternative, before either proceeding to full acquisition of the capital project (investment) or useful segment or terminating the investment. Planning must progress to the point where you are ready to commit to achieving specific goals for the completion of the acquisition before proceeding to the acquisition phase. Information gathering activities may include market research of available solutions, architectural drawings, geological studies, engineering and design

studies, and prototypes. Planning is a useful segment of a capital project (investment). Depending on the nature of the investment, one or more planning segments may be necessary.

Planning Package (PP) – A logical aggregation of work within a control account, normally the far-term effort, that can be identified and budgeted in early baseline planning, but is not yet defined into work packages.

Responsibility Assignment Matrix (RAM) – A depiction of the relationship between the WBS elements and the organizations assigned responsibility for ensuring their accomplishment.

Schedule Variance (SV) – A metric for the schedule performance on a program. It is the algebraic difference between EV and the budget (Schedule Variance = Earned Value – Planned Value). A positive value is a favorable condition while a negative value is unfavorable.

Single Point Adjustment (SPA) – An SPA is made when an investment's existing cost and/or schedule variances are set to zero and all the remaining work is re-planned with the goal of completing the investment on schedule and on budget. The SPA obscures past performance, collapses the EAC range, and makes the resulting EAC unreliable.

Schedule Performance Index (SPI) – SPI is the dollar value of work accomplished for each dollar of work planned.

Undistributed Budget (UB) – Budget applicable to contract effort that has not yet been identified to the WBS elements at or below the lowest level of reporting to the Government.

Variance at Completion (VAC) – The difference between the total budget assigned to an investment, WBS element, organizational entity, or cost account and the estimate at completion. Variance at Completion = Budget at Completion - Estimate at Completion. It represents the amount of expected overrun or underrun.

Work Breakdown Structure (WBS) – A product-oriented family tree division of hardware, software, services, and other work tasks that organizes, displays, and defines the product to be developed and/or produced and relates the elements of the work to be accomplished to each other and the end product(s).

Work Package (WP) – A detailed task or set of tasks performed within a control account. It represents units of work at levels where work is performed. It is clearly distinguished from all other work packages; is assigned to a single organizational element; has scheduled start and completion dates; allows for the objective measurement of discrete work; has a budget or assigned value (dollars); and the duration is limited to a relatively short span of time.

10. WAIVERS

No waivers allowed.

11. RELATED POLICIES, STANDARDS AND GUIDANCE

None.

12. MATERIAL SUPERSEDED

EVM Procedures dated December 18, 2004.

13. ADDITIONAL INFORMATION

See Appendices A-D attached.

Molly A. O'Neill, Assistant Administrator
and Chief Information Officer
Office of Environmental Information

APPENDIX A OMB Quarterly EVM Reporting Template

Agency:	
As of Date:	
Fiscal Year Quarter:	
Prepared By:	
Telephone Number:	
Email Address:	

	Investment	Bureau/Component	Unique Project Identifier FY09	Date of Last Executive Management Review (Dept. IRB, CIO, CPO etc.)	BAC	BCWS	ACWP	BCWP	CPI	CV%	SPI	SV %	Comments
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
									Average	#DIV/0!		#DIV/0!	

Comments may address variances, or explain other details such as investment status, contract type, Level of Effort activities, etc.

APPENDIX B ANSI/EIA STANDARD 748 – Summarized (32) Guidelines

Organization

1. Define the authorized work elements for the program. A WBS, tailored for effective internal management control, is commonly used in this process.
2. Identify the program organizational structure including the major subcontractors responsible for accomplishing the authorized work, and define the organizational elements in which work will be planned and controlled.
3. Provide for the integration of the company's planning, scheduling, budgeting, work authorization, and cost accumulation processes with each other, and as appropriate, the program WBS and the program organizational structure.
4. Identify the company organization or function responsible for controlling overhead (indirect costs).
5. Provide for integration of the program WBS and the program organizational structure in a manner that permits cost and schedule performance measurement by elements of either or both structures as needed.

Planning, Scheduling and Budgeting

6. Schedule the authorized work in a manner which describes the sequence of work and identifies significant task interdependencies required to meet the requirements of the program.
7. Identify physical products, milestones, technical performance goals, or other indicators that will be used to measure progress.
8. Establish and maintain a time-phased budget baseline, at the control account level, against which program performance can be measured. Initial budgets established for performance measurement will be based on either internal management goals or the external customer negotiated target cost including estimates for authorized but undefinitized work. Budget for far-term efforts may be held in higher level accounts until an appropriate time for allocation at the control account level. On government contracts, if an over target baseline is used for performance measurement reporting purposes prior notification must be provided to the customer.
9. Establish budgets for authorized work with identification of significant cost elements (labor, material, etc.) as needed for internal management and for control of subcontractors.
10. To the extent it is practicable to identify the authorized work in discrete work packages, establish budgets for this work in terms of dollars, hours, or other measurable units. Where the entire control account is not subdivided into work packages, identify the far term effort in larger planning packages for budget and scheduling purposes.
11. Provide that the sum of all work package budgets plus planning package budgets within a control account equals the control account budget.
12. Identify and control level of effort activity by time-phased budgets established for this purpose. Only that effort which is unmeasurable or for which measurement is impractical may be classified as level of effort.
13. Establish overhead budgets for each significant organizational component of the company for expenses which will become indirect costs. Reflect in the program budgets, at the appropriate level, the amounts in overhead pools that are planned to be allocated to the program as indirect costs.
14. Identify management reserves and undistributed budget.
15. Provide that the program target cost goal is reconciled with the sum of all internal program budgets and management reserves.

Accounting Considerations

16. Record direct costs in a manner consistent with the budgets in a formal system controlled by the general books of account.
17. When a WBS is used, summarize direct costs from control accounts into the WBS without allocation of a single control account to two or more WBS elements.
18. Summarize direct costs from the control accounts into the contractor's organizational elements without allocation of a single control account to two or more organizational elements.
19. Record all indirect costs which will be allocated to the contract.

20. Identify unit costs, equivalent unit's costs, or lot costs when needed.
21. For EVMS, the material accounting system will provide for:
    - Accurate cost accumulation and assignment of costs to control accounts in a manner consistent with the budgets using recognized, acceptable, costing techniques.
    - Cost performance measurement at the point in time most suitable for the category of material involved, but no earlier than the time of progress payments or actual receipt of material.
    - Full accountability of all material purchased for the program including the residual inventory.

Analysis and Management Reports

22. At least on a monthly basis, generate the following information at the control account and other levels as necessary for management control using actual cost data from, or reconcilable with, the accounting system:
    - Comparison of the amount of planned budget and the amount of budget earned for work accomplished. This comparison provides the schedule variance.
    - Comparison of the amount of the budget earned and the actual (applied where appropriate) direct costs for the same work. This comparison provides the cost variance.

23. Identify, at least monthly, the significant differences between both planned and actual schedule performance and planned and actual cost performance, and provide the reasons for the variances in the detail needed by program management.
24. Identify budgeted and applied (or actual) indirect costs at the level and frequency needed by management for effective control, along with the reasons for any significant variances.
25. Summarize the data elements and associated variances through the program organization and/or WBS to support management needs and any customer reporting specified in the contract.
26. Implement managerial actions taken as the result of earned value information.
27. Develop revised estimates of cost at completion based on performance to date, commitment values for material, and estimates of future conditions. Compare this information with the performance measurement baseline to identify variances at completion important to company management and any applicable customer reporting requirements including statements of funding requirements.

Revisions and Data Maintenance

28. Incorporate authorized changes in a timely manner, recording the effects of such changes in budgets and schedules. In the directed effort prior to negotiation of a change, base such revisions on the amount estimated and budgeted to the program organizations.
29. Reconcile current budgets to prior budgets in terms of changes to the authorized work and internal re-planning in the detail needed by management for effective control.
30. Control retroactive changes to records pertaining to work performed that would change previously reported amounts for actual costs, earned value, or budgets. Adjustments should be made only for correction of errors, routine accounting adjustments, effects of customer or management directed changes, or to improve the baseline integrity and accuracy of performance measurement data.
31. Prevent revisions to the program budget except for authorized changes.
32. Document changes to the performance measurement baseline.

APPENDIX C Acronyms

Acronym	Definition
ACWP/AC	Actual Cost of Work Performed
ANSI/EIA	American National Standards Institute/Electronic Industries Association
BAC	Budget at Completion
BCWS/PV	Budgeted Cost of Work Scheduled
BCWP/EV	Budgeted Cost of Work Performed
CA	(1) Chief Architect (2) Control Account
CCA	Clinger-Cohen Act
CFO	Chief Financial Officer
CIO	Chief Information Officer
CPI/SPI	Cost/Schedule Performance Index
CPIC	Capital Planning and Investment Control
CV/SV	Cost/Schedule Variance
DCIOT	Deputy Chief Information Officer for Technology
DME	Development/Modernization/Enhancement
DOD	Department of Defense
EA	Enterprise Architecture
EAC	Estimate at Completion
EPA	Environmental Protection Agency
EPAAR	EPA Acquisition Regulation
ETC	Estimate to Complete
EV	Earned Value
EVM	Earned Value Management
EVMS	Earned Value Management System
FAR	Federal Acquisition Regulation
FTE	Full Time Equivalent
IBR	Integrated Baseline Reviews
IIS	Information Investment Subcommittee
IMO	Information Management Officer
IPT	Integrated Project Team
IT	Information Technology
LoB	Lines of Business
NDIA	National Defense Industrial Association
O&M	Operations and Maintenance
OAM	Office of Acquisition Management
OBS	Organizational Breakdown Structures

OEI	Office of Environmental Information
OMB	Office of Management and Budget
PF	Performance Factor
PM	Project (Investment) Manager
PMA	President's Management Agenda
PMB	Performance Measurement Baseline
PMI	Project Management Institute
PMP	Project Management Professional
PMSC	Program Management Systems Committee
PP	Planning Package
QIC	Quality and Information Council
RAM	Responsibility Assignment Matrix
SBO	Senior Budget Officer
SIO	Senior Information Official
SLC	System Life Cycle
SME	Subject Matter Expert
SPA	Single Point Adjustment
SPE	Senior Procurement Executive
SPI	Schedule Performance Index
SRO	Senior Resource Official
SV	Schedule Variance
UB	Undistributed Budget
VAC	Variance at Completion
WBS	Work Breakdown Structure
WP	Work Package

APPENDIX D Contractor EVM Compliance Certification Letter

Month Day, Year
EPA Contracting Officer Name, Title
Mailing Address
City, State Zip Code

Dear (EPA Contracting Officer):

I, _____ (First Name Last Name) representing _____ (Contractor Company) certify that the EVM reporting for _____ (Contract Number) is compliant with Federal Acquisition Regulation (FAR) Clauses 2.101, 7.105, 34, 34.2, and 52.234-2 through 52.234-4, as amended on April 8,2005 (70 FR 17945).

[OR]

I, _____ (First Name Last Name) representing _____ (Contractor Company) have initiated a waiver request for _____ (Contract Number) that will demonstrate that compensating EVM controls are in place for the investment.

Sincerely,

Contractor Representative Signature

Contractor Representative Name